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EXECUTIVE  
SUMMARY

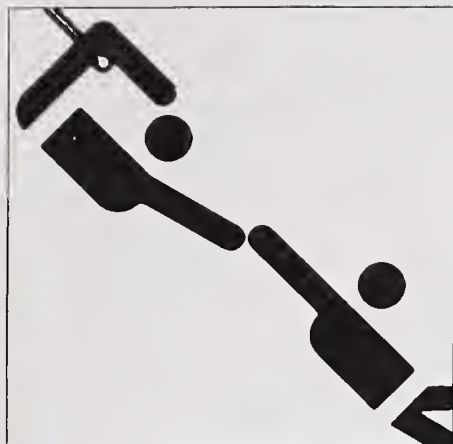


FINAL REPORT



MULTI-PURPOSE ARENA FEASIBILITY STUDY  
MASSACHUSETTS CONVENTION CENTER AUTHORITY





## FINAL REPORT EXECUTIVE SUMMARY

November 1984



Howard Needles Tammen & Bergendoff

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# MULTI-PURPOSE ARENA FEASIBILITY STUDY

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MULTI-PURPOSE ARENA FEASIBILITY STUDY

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ABSTRACT  
OF THE  
EXECUTIVE SUMMARY

As authorized and directed by the Legislature (Chapter 400), the Massachusetts Convention Center Authority (MCCA) commissioned this design and financial feasibility study relative to the development and operation by the Authority of a multi-purpose arena of sufficient size and with adequate facilities to accommodate major civic, athletic, recreational and entertainment events. The project's objective was to provide the MCCA with the information necessary to decide between and, in turn, begin implementation planning for one of two prime alternatives: renovating the existing Boston Garden or constructing a new arena.

This Executive Summary of the project report contains the key findings and the recommendations of the multi-discipline Study Team. A supporting Final Report contains the detailed findings and analyses for the project.

The Study Team concludes that a new arena at North Station is the preferred alternative. A new arena is feasible providing that the key planning assumptions described in the Final Report and in the Executive Summary are implemented. The Study Team is therefore recommending that the MCCA proceed with the planning and implementation activities necessary to finance and construct a new arena at North Station as described in this Study.

The primary reasons for recommending the construction of a new arena are the following:

- o A fully renovated Garden would not provide the region with a facility which meets industry standards for a modern facility, due to physical constraints of the existing building. Patron sense of well-being, comfort and average sightlines would be improved in a new facility, compared to that which could be accomplished in a renovated Garden. Furthermore, the current Garden cannot be renovated to fully meet contemporary life safety codes without specific exemptions because of the building's physical configuration.
- o A new public arena can be designed and operated to better serve the public's interest than is currently achieved at the Garden. This would include meeting the market's need for a broader variety of events and the public's interest in increased civic usage of an arena.
- o Capital funds for the arena could be provided through an increase in the Hotel/Motel Room Occupancy Tax, which is primarily a tax affecting non-Massachusetts residents. Opportunities were evaluated for firm commitments of private sector capital in the funding strategy, but were determined to be insufficient to serve as the principal financing mechanism.
- o Construction phasing of a new arena can be accomplished in a manner which will permit continued operation of the Garden, and thus, patrons or tenants would not be displaced during the construction period.
- o The preferred public financing plan would preserve the economic interests of the new arena's prime tenants, since ticket prices would not be increased to fund the cost of the new arena construction.
- o The existing recommended North Station site and the elimination of the existing Garden would create a new, high-value, multi-use development site within the City of Boston which would not exist if the Garden were renovated. This multi-use development would create the opportunity for

new employment, additional sales and income tax revenues for the Commonwealth, and additional real estate tax base for the City -- all substantially beyond that which could be expected from any renovation of the Garden.

- o Constructing a new arena provides the opportunity at North Station for a more comprehensive and modern transportation solution.

The maximum practical renovation of the Garden is substantially less costly than the construction of a new arena. A fully renovated Boston Garden would have a base construction cost of approximately \$25 million (1984 dollars). A new arena as proposed by the Study Team would have a base construction cost of \$78.9 million (1984 dollars), a figure which includes the arena's portion of a train station Galleria and the structural and mechanical costs for building above the commuter rail tracks.

The Study Team judged the higher cost of the new arena to be reasonable in light of the higher quality of the new facility and the substantial new economic benefits resulting from the intensive use of the residual Garden site. The opportunity to fund the additional cost of a new arena through a primarily non-residential tax can serve to relieve the Commonwealth residents of the financial burdens of constructing a new arena. Furthermore, this can be accomplished while stimulating economic growth (and new tax base) in the City and the Commonwealth. These factors provide very compelling public policy reasons for proceeding with the new arena concept.

There are many activities and coordinating efforts which must be accomplished in order to successfully implement the new arena construction concept. In addition, there are contingencies related to other development projects in the North Station area which could affect the arena concept. These issues are described more fully in the Executive Summary and in the Final Report.





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# EXECUTIVE SUMMARY







# EXECUTIVE SUMMARY



## ORGANIZATION OF THIS EXECUTIVE SUMMARY

This Executive Summary is organized in the following manner:

- I) Purpose of The Study
- II) Criteria for Assessing Feasibility
- III) Analysis of the Boston Garden
  - A) The Existing Facility
  - B) Owner's Proposed Renovation Program
- IV) Renovation of the Boston Garden to Industry Standards
- V) A New Arena at North Station
- VI) Comparison Summary: A Renovated Garden versus a New Arena at North Station
- VII) Conclusions and Recommendation

Supporting illustrations of the proposed design concept and financial Exhibits are contained in a separate section at the end of this Executive Summary.



## I) PURPOSE OF THE STUDY

On October 6, 1983, the Governor of the Commonwealth signed into law Chapter 400, an act "providing for an accelerated study of the feasibility of a multi-purpose arena" for the Boston metropolitan area. This was the culmination of a series of events over the preceding several years that had focused public attention on the conditions at the existing, 56-year-old Boston Garden facility.

Although the legislation did not specifically direct the MCCA to evaluate the Boston Garden, the Study was structured to assess the feasibility of developing a renovated multi-purpose arena (the Garden) or a new arena to serve the metropolitan Boston marketplace. As such, the study provides the Massachusetts Convention Center Authority the objective information necessary to decide whether to proceed with action that would lead to a complete renovation of the existing Boston Garden or the construction of a new arena.

### Study Activities

In meeting the overall objectives of the study, several activities were performed to develop the proper comparisons between the Boston Garden and a new facility. The major activities were as follows:

- 1) The compilation of a set of multi-purpose arena industry standards as criteria for evaluating the Boston Garden and a determination whether the marketplace in Boston for public entertainment is adequately served by the existing facilities.
- 2) The determination of the characteristics that an arena should have to adequately meet the demand for public entertainment in Boston.
- 3) An objective evaluation of the present Boston Garden facility, with the assistance of its present owners, to determine its physical condition and ability to meet market potential.
- 4) A determination as to whether the Boston Garden can be sufficiently renovated to yield a long-term facility that meets the industry standards appropriate for the Boston marketplace; an evaluation of the extent to which the present owners have plans and the resources to accomplish such

a renovation; and the degree to which the owner's plans address renovation of the arena compared to the commercial areas in the Garden.

- 5) A site recommendation if a new arena were to be built.
- 6) The definition of an initial building program and design concept for a new arena, based upon the needs of multi-purpose use, the industry standards as modified for the Boston marketplace, and the local market demand for public entertainment.
- 7) An assessment of the costs of both the renovation and the new building options, the possible financing approaches, and the costs, if any, which might be borne by the general state taxpayers.
- 8) A comparison of the costs and benefits of the renovation and new arena options, and a suggestion of ways by which the preferred solution could be implemented.

The following sections of this Executive Summary provide a synopsis of the Study Team's major findings and conclusions relative to renovating the Garden or building a new arena.

#### Use of the Report

The objective of this project was to prepare a feasibility study relative to the development and operation by the Authority of a multi-purpose arena of sufficient size and with adequate facilities to accommodate major civic, athletic, recreational, and entertainment events. As such, the scope of project work and this report were designed to assist the Authority in the decision process with respect to renovating the existing Boston Garden or constructing a new arena.

The study has identified numerous conditions which must exist and steps which must be accomplished for implementing the recommended course of action and achievement of the projected results. As planning and implementation proceed, outcomes differing from those assumed will cause variations in the results and perhaps changes in the appropriate course of action. This report provides an orderly presentation of the best available information at the time the study was conducted. The Study



Team did not audit the data and information used in the analyses but did review such information as required for the purposes of the study. Therefore, it believes that the conclusions and planning assumptions drawn from such information can be independently verified and relied upon for these planning and decision-support purposes. As described above, this feasibility study was conducted for evaluation and planning purposes. Accordingly, it should not be relied upon for any other purpose.

II) CRITERIA FOR ASSESSING  
FEASIBILITY

Listed below is a summary of the criteria used in assessing the feasibility of the renovation and new arena options:

- 1) Ability to serve both the public interest for civic functions and the market demand for a variety and quantity of entertainment and public assembly events.
- 2) Generation of operating profits consistent with industry standards and in sufficient amounts to provide for the long-term physical upkeep of the building.
- 3) Access to sufficient capital necessary to fund renovation or new construction.
- 4) Willingness to create an industry standards facility.
- 5) Minimization of the completed facility's financial and operating costs to the general taxpayers of the Commonwealth.
- 6) Impact of the facility on Boston's national reputation as a first-class market for professional sports and other public entertainment.
- 7) Conformity with contemporary life safety and building code standards.
- 8) Quality of the spectator's entertainment experience.
- 9) Efficiency and ease of operation, from the viewpoint of the major entertainers, professional sports tenants, and other entertainment promoters.



- 10) Protection of the economic interests of the arena's prime tenants.
- 11) The degree to which a renovated or new arena can serve to stimulate and maximize economic revitalization in the surrounding area.
- 12) The degree to which a renovated or new arena can benefit from and contribute to the area's long term transportation development.
- 13) The degree to which a renovated Garden or new arena is consistent with City and BRA policy for the North Station district's redevelopment.
- 14) Generation of economic benefits to the City of Boston.
- 15) Generation of economic benefits to the Commonwealth of Massachusetts.

In the following sections, summaries are provided of the results of the Study Team's evaluation of the two basic development options in light of the above criteria. These two options are:

- o Renovate the existing Boston Garden, either through acceptance of the current owner's renovation plan or by facilitating a more extensive renovation that produces a building that is closer to industry standards for multi-purpose arenas.
- o Construct a new arena at the North Station site, immediately behind the existing Garden and utilizing the Garden site for transportation and private development.

### III) ANALYSIS OF THE BOSTON GARDEN

As a starting point for assessing the acceptability of a renovated Boston Garden, an analysis was made of the physical conditions, operations, and management's event scheduling policies for the existing facility. The Study Team believes that this provides helpful background and a valid perspective from which to judge the feasibility of the renovation option.

## The Existing Facility

The Study Team found that the existing Boston Garden is not an acceptable long term solution to Boston's needs for a multi-purpose public entertainment facility. While the existing Garden has a long tradition of serving Boston's public entertainment market since 1929 and has been a part of the historical identity and fabric of the City, the facility is well past its physical prime. The building will be more than sixty years old by the time a new facility could be built. Its age, condition, physical characteristics, and relation to current development patterns within the City generally project a negative image. Such an image is not in keeping with Boston's national stature as a contemporary, vibrant, and first class city, with highly successful sports teams and strong demand for quality public entertainment.

Ability to Meet Market Demand: The current owner's event scheduling policies and the physical limitations of the Garden (for example, its capacity and quality of seating and lack of air conditioning) lead to a quantity and mix of events that do not serve the market demand for public entertainment in Boston. The public interest and market demand in the Boston area suggest a broader range of entertainment options than is currently being offered at the Garden. Exhibit A shows the estimated local market demand for public entertainment compared to the Garden's average actual results over the last five years.

Internal Financial Condition: The Garden appears to generate sufficient operating revenues and profits to meet the on-going, regular financial needs of the facility and the owners. The Garden's estimated overall profitability from both event and concessions businesses appears to be in the range expected from similarly-sized facilities in comparable markets.

### Ability to Support a Renovation Program:

Judging the financial merits of a major real estate renovation venture is a highly complicated, technical effort which must take into account the tax status and investment objectives of the prospective investors. The Study Team performed some preliminary assessments of renovation investment scenarios which indicated that:



- o A one-time investment of between \$2 to 6 million may be supported purely by the Garden's current profitability under conservative financing and investment assumptions. This profitability is based upon current event and attendance levels.
- o Perhaps up to \$14 million in renovation investments could be justified by the current owners if a renovation led to a modest increase in future event and attendance levels. Again, this assumes conservative financing criteria, and is only from the perspective of the new Boston Garden Corporation's operations.
- o If the owners could take full advantage of currently available investment tax credits that might be allowed under an IRS-approved historic property or qualified rehabilitation designation and the parent company could take advantage of the tax benefits that might be available from Garden operating losses, the amount of renovation investment that could be justified by the parent company might exceed \$14 million.
- o Additionally, it is likely that the owners would favor renovation of the commercial spaces, rather than improvements to the arena area, since refurbished commercial areas may offer more immediate gains in facility operating profits.

Based upon the above, the Study Team cannot definitively conclude whether a substantial renovation expenditure would represent a financially attractive investment to the current Garden owners.

Life Safety: Since the Boston Garden is still used for its original purpose as when initially constructed, it is a "grandfathered" structure which has not been required to comply with all provisions of today's building code requirements. However, the current Boston Garden design could not be built under today's code. A major renovation would not necessarily have to completely comply with the code, but would have to significantly improve life safety subject to review and approval by the appropriate code officials.



Regardless of the status of the building code's applicability and enforcement, the Study Team found several serious life safety issues in the building. The balconies are steeper than is allowed by the current building code. Some stair risers exceed the 7-1/2" maximum allowed by the Massachusetts Building Code. Some seating has been installed with inadequate dimensions between seats, too many seats in a row, and located too close to the hockey dasher board. These dimensional constraints would clearly retard the speed with which the building could be evacuated in an emergency situation. Additionally, due to the existence of approximately 1000 obstructed view seats, the upper balcony circulation areas become congested by standing spectators who seek better viewing opportunities. This congestion can inhibit efficient exiting in case of emergency. While the building appears to have adequate amounts of exiting capacity, the Study Team believes that there are inadequate numbers of enclosed emergency stairways serving all levels of the building, and the fire escapes are questionable as safe escape routes in an emergency situation. The building's 56-year old electrical system is obsolete and could create a hazardous condition. In addition, there is no adequate fire detection system.

Spectator Circulation: The Boston Garden has a confusing and inefficient spectator circulation system. Problems include conflicts between spectator and support circulation areas, a lack of mechanized vertical transport, discontinuous vertical circulation, and inadequate means of access and seating for handicapped spectators. The "sky boxes" are difficult to reach and leave.

Seating: The Boston Garden has substandard seats which are inferior to those found in contemporary arenas. The seats which have been installed by the current management are 17" wide, compared to the 18" to 21" which is standard in other arenas; the Massachusetts Building Code requires an average width of 19". Other deficiencies in seating include inadequate seat-to-seat clearances, excessive numbers of seats in rows, and uncomfortable non-rising molded plastic seats.

Sightlines: Although the Boston Garden has some excellent viewing positions from balcony

seats close to the floor, this is achieved at the expense of the resulting obstructed view seats in the last four rows of the "stadium" seating section. Approximately 1000 seats have obstructed views for basketball and hockey; for the circus the number is substantially greater. The percentage of seats with prime sightlines is somewhat lower than in modern arenas because of the building's long and narrow proportions.

Building Systems: Most of the Boston Garden's building systems (structure, roof, exterior masonry) are sound, but the electrical system and finishes require substantial upgrading.

Environmental Quality: The lack of air conditioning in the Boston Garden minimizes the usefulness and marketability of the building in summer months. The building has an inadequate air handling system which does not allow comfortable levels of air quality to be achieved in the circulation areas or the arena seating area.

Building Support Spaces: In addition to the problem of spectator/support area conflicts, some of the "back of the house" areas are deficient. Secondary locker rooms are remote, there are inadequate spaces for the press and media, truck docking areas are limited, and the Anelex and staging areas are remote from the arena floor.

Aesthetic Qualities: The original design solution, subsequent renovation and deterioration over time have made the aesthetic qualities of portions of the interior especially unpleasant. The pedestrian circulation areas are unattractive because of the absence of natural light, a 2x4 hung ceiling, vinyl floor tile, and highly inadequate and confusing graphics. However, some sports fans view the Boston Garden sentimentally.

Location and Accessibility: Travel accessibility to the Boston Garden is excellent, and will improve if the MBTA's North Station project and the DPW's Central Artery/Third Harbor Tunnel project are implemented. Pedestrian access from other areas of downtown Boston is excellent, and there is a reasonable evening and weekend parking capacity in the area.



Immediate Urban Context: In principle, the mixed use and joint development features of the Boston Garden serve the objectives of sound urban design goals. The mixture of arena, transportation and retail uses helps to ensure continuous human activity rather than the sterility of a single-use urban zone. However, the physical structure supporting each of these major uses has deteriorated, and an acceptable threshold of quality is no longer provided.

The removal of the elevated Green Line structure and the creation of a high quality commuter rail station are essential steps for the area's improvements. The existence of the Boston Garden is not incompatible with these projects; however, the Boston Garden occupies a prime site for development. This is an underutilization of the Causeway Street frontage from a development prospective. The size and bulk of the Garden prohibit development from realizing the potential value of the space immediately to the north of the building. Finally, as plans proceed to implement the goals of Boston Redevelopment Authority's urban renewal strategy, the Boston Garden presents itself as a difficult, but not insurmountable obstacle to establishing north-south pedestrian continuity. The presence of the Garden renders the site between the Garden and the expressway especially difficult to develop for office, residential or mixed uses.

Economic Benefits: In terms of economic benefits to the state and City, the current Boston Garden is estimated to generate the following impact (in 1984 dollars):

- o ongoing employment: 140-170 person years
- o direct and indirect spending: \$31,300,000
- o City tax revenues, annual: \$400,000
- o State tax revenues, annual: \$1,560,000

Cost to Taxpayers: The existing Garden requires no subsidy from the general taxpayers of the City or the State. Of course, as a private entity, it provides its statutory share of tax proceeds to the appropriate City, State, and Federal bodies. However, as previously discussed, the Garden's present location does not represent the highest and best economic use of the land parcel. Therefore, it can be argued that the current Garden represents lost



revenues to the taxpayers in the form of the tax revenues and economic impact that could otherwise arise from high-use redevelopment of the site.

Owner's Proposed  
Renovation Program

In recognition of the existing facility's limitations, the current owners have developed a renovation concept, as documented in the Boston Garden/North Station Restoration and Renovation Master Plan (February, 1984). As a way to remedy some of the facility's problems, the owner's renovation plan is proposed to:

- o upgrade the aesthetics and patron comforts within the building,
- o provide for restoration of the historical character and vitality of the mezzanine and former train concourse areas,
- o be compatible with the MBTA's proposed transportation redevelopment plans for the North Station area, and
- o provide for a limited improvement in the facility's revenue and profit generation potential, through expansion and upgrading of the retail, rental office, private club, and luxury suite areas; also, potential for additional events during the warmer months would be enhanced because of the addition of air conditioning.

The Study Team reviewed the current status of renovation planning documentation as presented by the Boston Garden management. This was supplemented by numerous facility tours and discussions with executive and operating management of the Garden, as well as the architects for the Garden renovation program. Management indicated that all documentation of their proposed renovation plan had been made available to the Study Team and that this plan was a full representation of their intentions. The allocation of the investment between arena and commercial components was not provided to the Study Team.

Based upon the renovation program documentation provided by management and the Study Team's understanding of the MBTA's transportation development plans for the North Station area, the following conclusions were reached concerning Garden management's proposed renovation:

- o Retention of the existing building at its present location effectively blocks any high-use redevelopment potential for the entire front and rear parcels. This is a major weakness in any plan that assumes retention of the existing Garden.
- o While representing an improvement, the renovation will not substantially overcome many of the present negative aspects associated with the Boston Garden's image. However, the renovation plan does attempt to retain the tradition and history associated with the facility.
- o The renovation, as proposed, will not bring the building up to a physical condition consistent with industry standards for a first class entertainment market such as Boston. New circulation elements are inadequately sized, spectator/support circulation systems still overlap, and improvements to program support spaces and finishes are inadequately addressed.
- o The renovation results in a slight reduction in seating capacity and still does not solve the problems of poor sight lines or obstructed views for a portion of the patrons.
- o The facility cannot be renovated to fully comply with contemporary life safety codes without complete reconstruction of the interior. This problem is inherent in the building's physical character, and does not reflect a deficiency of the owner's proposed renovation plan.
- o The extension of commuter rail tracks and platforms to the back of the Garden will make management's renovation concept infeasible as described. The proposed North Addition to accommodate additional systems for enhanced patron circulation is incompatible with the MBTA's current policy to extend commuter rail facilities to the very rear of the existing Garden structure. At present, there is no acceptable solution to the locational and organizational conflicts between the need for a new vertical circulation annex to serve Garden patrons and the desired extension of the commuter rail tracks.



- o The potential removal of the Anelex Building to accommodate the proposed Central Artery/Third Harbor Tunnel improvements project is not addressed in owner's renovation plan. Should this roadway improvements project go forward, it creates an additional complexity in implementing a major renovation because the Garden is critically dependent on the Anelex Building for access to the arena floor and for storage. The owner's preferred site for providing replacement support areas is on the alignment designated for the MBTA's relocated Green Line subway. Although the owner can proceed with implementing portions of the renovation plan immediately, full implementation must wait until the uncertainties surrounding the Central Artery/Third Harbor Tunnel project are resolved.
- o The event scheduling policies of Boston Garden management and the seating capacity of the Garden will not necessarily be affected by the renovation. Therefore, there is every expectation that market demand for entertainment in Boston would still be underserved after the renovation. It should be noted that these policies are the prerogative of the owners who operate the Garden as a private, for-profit business enterprise.
- o The incremental economic impact of the renovation on the City and State will be slight.
- o The Study Team estimated the potential improvement to overall Garden operating revenues and profits that might arise as a result of a full-scale renovation. The Study Team estimated that the Garden owners might be able to justify a one-time investment of up to \$14 million. This economically justifiable investment amount might be higher if 1) currently available investment tax credits were allowed under an IRS-approved historic property or qualified rehabilitation designation; and 2) by valuing the reduction in income taxes paid by Delaware North that may result from operating losses reported by the Boston Garden after the renovation is complete.



- o A life span of the renovated Garden is difficult to predict, but is likely to be in the range of 15-20 years. Starting with a industry substandard facility, the comparatively inferior quality is likely to be a continuing problem following a major renovation.

The owner's renovation program has been preliminarily costed by the owners at between \$15 million and \$17 million. At this time, the owner's commitment to proceed with this renovation program is not known. Even though the Study Team believes that such an investment may be economically feasible to the owners and the parent company, the Study Team cannot specify what conditions the owners may require before undertaking their renovation program. Full implementation of the owner's renovation program is dependent upon factors in addition to economics, such as:

- o Finalization of the MBTA's commuter rail track extension plans and the impact on the owner's proposed north addition for patron vertical circulation.
- o Finalization of MBTA plans to construct a subway to accommodate a relocated Green Line and construction of a new under-ground station to service North Station stops for both the Orange and Green Lines.
- o Finalization of the Central Artery/Third Harbor Tunnel project which may have an impact on Garden operations through the potential removal of the Anelex Building.

Therefore, it is possible that the owner's renovation plans will not be finalized and implemented until these issues are resolved.

#### IV) RENOVATION OF THE BOSTON GARDEN TO INDUSTRY STANDARDS

In order to offer a proper comparison between a new arena and a renovated Boston Garden, the Study Team developed a preliminary assessment of a renovation more extensive than that proposed by the Garden's management. This full renovation scenario would bring the Boston Garden as close to industry facility standards as practical. Certain assumptions were made in order for such an estimate to represent a realistic situation. These assumptions are as follows:

- o Trade-offs would be made in the extent of the industry standards renovation in order to allow the Garden to remain in operation during the reconstruction period.
- o The renovation would have to exist within the physical constraints of the Garden's basic structural envelope. For example, some actions which could help the building more fully realize industry standards are considered infeasible: removing internal support columns, modifying the roof structure, and adding additional seating beyond the limits of the existing envelope.
- o An industry standards-type extensive renovation of the Garden would cost approximately \$25 million (1984 dollars), before final design fees, inflation, contingency and required land acquisitions. Adding these factors would bring the total estimated renovated cost to between \$30 million and \$40 million. Financing costs could increase this total cost. It is unlikely that the current owners or even the parent company could economically justify this substantial level of investment. Therefore, the only other alternative would be for the public to fund the renovation program. Accordingly, the estimated cost for a full renovation includes public purchase of the Garden and its underlying land from the present owners. A public financing scenario for an industry standards Garden renovation is presented in Exhibit B and shows that approximately \$52 million in publicly-supported borrowing may be required for such a renovation.
- o Whether or not the Authority renovated the Garden or left this action to the private sector, a substantial public expenditure relative to the Garden will be required if the planned transportation projects are implemented. Public funds would be spent to deal with the effects of the Green Line relocation, extension of commuter rail tracks, and replacement of the support functions now contained in the Anelex building.
- o To the degree possible, the renovation would be compatible with the North Station redevelopment plans of the MBTA and the DPW's Central Artery/Third Harbor Tunnel projects.



## LIMITS OF THE FULL RENOVATION SCENARIO

It is critical to note that there are some negative physical features of the existing building that cannot be remedied even by a full renovation scenario. As described below, it is not possible to improve the Garden up to the level found in modern arenas.

- o Seating capacity cannot be increased; in fact, it would be reduced slightly because of the replacement of existing 17" seats with 19-21" wide seats.
- o Obstructed views cannot be eliminated without removing balconies and thus further reducing seating capacity.
- o Life safety issues would not be fully remedied.
- o The operating and patron circulation constraints imposed by the verticality of the Garden would remain.
- o Improvement of the organizational, spatial, and aesthetic qualities of the pedestrian circulation areas can only be partially achieved.
- o Overall efficiency of the building will not be enhanced because the gross sq. ft. of floor area per spectator will increase.

For ease of comparison, the Study Team's findings concerning a full renovation of the Boston Garden are summarized in Section VI of this Executive Summary and are presented along with the similar findings for a new arena at North Station.

## V) A NEW ARENA AT NORTH STATION

A major component of the Study effort was the development of a design concept and operational profile for a new arena to serve the public interest and entertainment demand of the Boston area. The study activities included the selection of the preferred site, a detailed analysis of the preferred site, estimates for the construction costs and strategy, an analysis of financing options, and estimates of the incremental economic benefits to the Commonwealth and City.

### The Design Concept

The new arena design concept illustrated in this Executive Summary responds to the specific constraints and opportunities of the North



Station site. Key features of the preliminary design concept are:

- o The arena as proposed has seating capacity of 17,311 for basketball, 16,588 for hockey, and 18,151 for concerts. These figures are subject to refinement during final design.
- o The arena has all of the support spaces and organizational qualities necessary for it to be a functional multi-purpose facility.
- o The arena is located above new commuter rail platforms and the Green Line subway, and would be built to fully integrate all of the transportation functions planned for the site.
- o The lobby for the arena is a commuter rail train station Galleria. The spacious and skylit Galleria will emphasize both the qualities of the transportation center and the arena's vertical circulation.
- o Adjoining the Galleria along Causeway Street is a major mixed-use development project containing retail uses on the lower two floors and offices above. A public Atrium connects the Galleria to the street.
- o Additional parking demand created by the new arena is not expected to be substantial. The parking deficit caused by the increase in seating capacity and elimination of existing parking spaces can best be met through the joint utilization of a new garage potentially enveloped and operated by Massachusetts General Hospital.

The Study Team's recommendation of 17,311 seats is based on its analysis of the regional market and the physical capacity of the preferred site. As part of its review of this market, the Study Team was aware of the needs and desires of the two major sports tenants expected to use facility. The Study Team recommends that the MCCA further collaborate with the teams concerning seating capacity and other design issues as final design proceeds.

#### Location

The North Station site was chosen as the preferred site for a new arena, principally due to its proximity to the downtown area, the existence of good public transportation access, and

the opportunities for additional private sector development that a new arena might spur. Furthermore, the MBTA's transportation improvement plans for North Station would further enhance the attractiveness of this site for a new arena.

#### Relationship to MBTA projects

A major assumption governing the design, construction cost estimates, and construction strategy/schedule for a new arena was that the MBTA's currently preferred transportation improvement plans will proceed. Key elements of this plan are the extension of the commuter rail tracks up to the rear of the current Boston Garden, relocation of the elevated Green Line to a new tunnel below Accolon Way and the City-owned parcel to the rear of the Garden, and the construction of a new subway station for both the Orange and Green Lines, at the eastern side of the Garden site. These conditions lead to the need for an elevated arena structure, above the proposed commuter rail tracks, as well as the need to incorporate major transit and commuter rail rider accommodations into the basic concept for the site.

#### Relationship to existing Boston Garden

In order to fully complete the structures necessary to serve patrons of both the new arena and the commuter rail terminal, a portion of the land parcel presently occupied by the Garden will be needed. Also, the Garden must remain in full operation during construction of the new arena. These assumptions lead to an estimated new arena capital cost that includes purchase of the existing Garden structure and underlying land.

#### Development scenario

Upon completion of the new arena, the existing Garden would be demolished, final circulation systems would be added to the new arena, and the remainder of the front parcel would be made available for development by the private sector. This development scenario would also provide major opportunities for participation by the Boston Redevelopment Authority through incentives, design review and joint development.

#### Construction Schedule

If the new arena project receives the necessary approvals so that final design could begin by September, 1985 the new arena could open in the summer of 1989.



Project Costs and  
Preliminary Bonding  
Requirement

Exhibit C summarizes the Study Team's estimates for the total costs of a new arena at North Station and the preliminary bonding requirement. As shown in the Exhibit, the base arena construction cost is \$78.9 million in 1984 dollars, including the structural and mechanical cost premiums for building above the commuter rail platforms. This figure must be increased to cover Garden and land acquisitions (\$23,000,000), demolition of the Garden (\$2,200,000), construction management, design, engineering, environmental impact analysis, (\$7,700,000 in total), and contingencies and inflation over the 63-month estimated construction period (\$29,800,000). It should be noted that substantially more development would take place with a new arena compared to a renovation. For example, the total project costs include partial funding for a combined train station Galleria area and clearing of the Garden parcel for future private development.

Exhibit C also shows the estimated financing requirements for a new arena, assuming that State general obligation bonds are the sole source of construction financing.

The analyses concerning the specifics of a new arena are summarized in the following Section of this Executive Summary and are compared to the alternative of fully renovating the Boston Garden as close as practical to an industry standard.

Revenues and Expenses

The Study Team has estimated that a new arena at North Station would be expected to generate net operating cash flow before any outside financing sources of approximately \$1,300,000 in 1984 dollars or approximately \$2,900,000 in 1992 dollars. The year 1992 was selected as a basis for comparison because it is estimated to be the second full year after completion of the total construction project and the earliest time when regular arena operations might be established, unaffected by the construction program. Exhibit D illustrates the expected revenue and expense profile for the new arena, in 1984 dollars and inflated to 1992 dollars.

Recommended Financing Plan

Several options for financing construction of the new arena were analyzed. The possible financing alternatives are variations or combinations of three basic mechanisms:



- 1) Usage of private monies to the maximum degree in order to pay for construction costs, to supplement arena operating cash flow available for debt service, or both.
- 2) Usage of the general obligation bonding authority of the Commonwealth, with debt service supported by the general taxpayers.
- 3) Dedication of a public revenue source, either to (a) fund construction costs directly, or (b) to support debt service costs over and above that which could be covered by arena operating cash flow.

Two criteria were used in evaluating the arena financing options:

- o The degree to which the financing costs to be borne by the general taxpayers could be minimized.
- o The degree to which a secure source of revenue or capital financing could be made available at the time needed to pay for construction or debt service costs.

With respect to the three basic financing mechanisms outlined above, the Study Team has concluded that:

- o While a new arena will generate positive cash flow from operations of approximately \$2,900,000 per year (in 1992 dollars), Exhibit E shows that this amount is far less than that needed to cover debt service costs (principal and interest) associated with potential borrowings to finance the construction program. Therefore, state or private support will be a necessary component of the financing approach.
- o The arena financing plan should be based principally on state-sponsorship. As shown in Exhibit F, the viable opportunities for non-state or private participation in the costs of construction or for ongoing support of arena debt service are small in relation to the total project requirements. Also, a major effort would be required in order to obtain firm and secure commitments for any material amounts of non-state funding sources prior to commencing construction.

- o It is desirable to rely on the general obligation bonding authority of the Commonwealth or the bonding authority of the MCCA to finance the construction of a new arena. This approach would fulfill one of the financing evaluation criteria, namely, to provide a secure source of construction financing and future debt service payments. Furthermore, elimination of the potential burden on the general state taxpayers (the second criterion) can be accomplished if a modest amount of non-state construction capital or supplemental arena operating revenues are combined with state general obligation debt financing. Sufficient non-state capital or arena revenue sources may be available, when combined with arena annual operating cash flow and the new, annual state and city tax revenues from the arena project, to eliminate the potential taxpayer burden (Exhibit G). However, since these non-state financing sources are not assured, other arena financing mechanisms that offer larger, more secure revenue sources should first be pursued.
  
- o Dedication of a public revenue source to debt service on general obligation bonds represents the best approach to financing a new arena. The Study Team has determined that an increase in the state-wide Hotel/Motel Room Occupancy tax to a rate less than the average of the other surveyed major market cities would be adequate to fully cover debt service on borrowings to fund construction. These findings are summarized in Exhibit H. Some of the Study Team's other findings that support this financing approach are:
  - The current 5.7% Massachusetts Hotel/Motel Room Occupancy tax rate is one of the lowest in a survey of 22 major U.S. cities conducted by the Study Team. This survey showed that the average total state and city tax rate on hotel rooms in 22 cities was nearly double the current Massachusetts rate.
  - Many precedents exist in cities and states throughout the U.S. for this or a similar mechanism for



funding the costs of publicly owned arenas or convention centers. Examples include the states of Texas, Florida, and Louisiana, and the cities of Los Angeles, Atlanta, Milwaukee, and San Francisco.

- This revenue source is supported principally by non-Massachusetts residents. Between 75 and 85 percent of Massachusetts Hotel/Motel Room Occupancy tax revenues were generated from out-of-state visitors in 1983, based upon information published by Professor Cournoyer of the University of Massachusetts at Amherst in the Massachusetts travel series survey.

Therefore, the Study Team recommends that the use of an increase in the Hotel/Motel Room Occupancy taxes be the preferred approach for financing the debt service costs of a new arena in Boston. The Study Team's work did not include the legal research necessary to design the details of this financing approach. Technical and legal research will be necessary as part of the implementation activity in order to formulate the specifics of the financing plan in a manner consistent with legislative requirements.

VI) COMPARISON SUMMARY:  
A BOSTON GARDEN RENOVATED  
TO INDUSTRY STANDARDS -vs-  
A NEW ARENA AT NORTH  
STATION

The Study Team's findings relative to the benefits of a publicly-sponsored, full renovation of the Boston Garden, compared to the benefits of a new arena, are quite extensive. To assist in drawing such comparisons, the following chart summarizes the Study Team's findings for each of the criteria used to assess feasibility (see Section II of this Executive Summary). Findings for the Boston Garden renovation options are grouped with similar findings for a new arena at North Station.



<u>COMPARISON CRITERIA</u>	<u>FULLY RENOVATED BOSTON GARDEN</u>	<u>NEW ARENA AT NORTH STATION</u>
1) Serves public interest for diversity of events and civic functions	o Yes, if extensively renovated under public ownership	o Would be part of policy if owned by the public
2) Serves market potential	o Building imposes constraints on seating capacity and therefore may not fully serve market demand	o Facility will be designed to serve market potential
3) Owner has ability to fund the necessary construction program	o Yes, if state-owned	o Yes, if state owned
4) Project costs	<ul style="list-style-type: none"> <li>o \$25 million base renovation construction cost</li> <li>o Additional project costs would include: <ul style="list-style-type: none"> <li>- \$17 million for acquisition of Garden and City Land</li> <li>- \$3.3 million for design and engineering</li> <li>- \$9.2 million for contingencies and inflation</li> </ul> </li> <li>o Total project cost if supplemented by Commonwealth would be \$54.5 million.</li> </ul>	<ul style="list-style-type: none"> <li>o \$78.9 million base arena construction cost, including arena portions of the Galleria and the structural and mechanical costs for building above the commuter rail platforms.</li> <li>o Additional project costs would include: <ul style="list-style-type: none"> <li>- \$14.5 million for Garden acquisition</li> <li>- \$8 million for City Land acquisition</li> <li>- \$.5 million for MGH land</li> <li>- \$2.2 million for Garden demolition and site clearing for later private sector development</li> <li>- \$7.7 million for design, engineering, EIR, and construction management fee</li> <li>- \$29.8 million for contingencies and inflation</li> </ul> </li> <li>o Total project cost under a state-supplemented construction management approval would be \$141.6 million.</li> </ul>

<u>COMPARISON CRITERIA</u>	<u>FULLY RENOVATED BOSTON GARDEN</u>	<u>NEW ARENA AT NORTH STATION</u>
5) Potential cost to be borne by state taxpayers, annually	o Could cost state taxpayers \$2-3 million annually in debt service costs not offset by new, annual state tax revenues	o Could be a net gain to taxpayers of as much as \$1.5 million per year, if supplemental arena revenue sources and development of Garden parcel are implemented.
6) Possible capital funding mechanisms	o A general obligation bond financing structure appears to be the most economical	o A general obligation bond financing structure appears to be the most economical
7) Annual economic impact (1992, excluding one-time construction impacts)	o Marginal: <ul style="list-style-type: none"> <li>- no net new employment</li> <li>- \$820,000 per year in new state tax</li> <li>- \$4.9 million in annual new economic activity</li> </ul>	o Excellent: <ul style="list-style-type: none"> <li>- 600 person years of new private sector employment annually</li> <li>- \$6.6 million per year in new state and city tax revenues</li> <li>- \$37.5 million in annual, new economic activity (this amount is primarily due to the impact of the related private sector development)</li> </ul>
8) Annual new tax revenues generated (1992, excluding one-time construction impacts)	o None to City  o \$820,000 to State	o \$3.7 million to City  o \$2.9 million to State (both amounts include multi-use development)

FULLY RENOVATED  
COMPARISON CRITERIA

NEW ARENA AT  
BOSTON GARDEN

NORTH STATION

9) Stimulus to area redevelopment	o Moderate; remaining site to north of Garden will be difficult to develop	o A catalyst for and major component of front parcel at Causeway Street is the development of up to 600,000 sq. ft. of retail/office space
10) Quality of arena	o Not possible to achieve industry standards	o Would be a high-quality, industry standards facility
11) Compliance with contemporary life safety codes	o Improved over current Garden, but cannot completely comply with contemporary standards	o Full compliance
12) Level of spectator comfort	o Moderate-to-good	o Good-to-excellent
13) Seating capacity	o 14,500 (basketball; reduced from present capacity)	o 17,311 (basketball) 16,583 (hockey) 18,151 (concerts, boxing)
14) Quality of seating and sightlines	o Ranges from poor to excellent, as in current building	o Good-to-excellent, with narrower range of quality
15) Accommodate planned new transit development at North Station	o Yes, but limits potential for new train station project	o Yes; train station is a major component of total arena design concept
16) Realization of transit investment's full potential	o Improves	o Has highly favorable impact
17) Operating cash flow before debt service	o Not specifically estimated but expected to be no greater (and probably less) than a new arena	o \$2.9-7.5 million; the upper end of the range depends on certain outside financing support and implementation of available supplemental arena revenue sources, such as ticket surcharges.



<u>COMPARISON CRITERIA</u>	<u>FULLY RENOVATED BOSTON GARDEN</u>	<u>NEW ARENA AT NORTH STATION</u>
18) Impact on Boston's image as a nationally-prominent city	o Moderate improvement	o Will be highly favorable, especially with related transit and private sector development projects
19) Complexity of Implementation	o Moderate; requires: <ul style="list-style-type: none"> <li>- use of eminent domain</li> <li>- substantial co-ordination with MBTA and DPW projects</li> <li>- cooperation from City, including acquisition of City-owned land</li> </ul>	o Quite complex; requires: <ul style="list-style-type: none"> <li>- use of eminent domain</li> <li>- approval of construction management approach</li> <li>- substantial coordination with MBTA and DPW projects</li> <li>- cooperation from the City, including land acquisition</li> </ul>
20) Effect on major tenants	o Marginal overall improvement <ul style="list-style-type: none"> <li>o Reduced seating capacity would further limit attendance (key at playoff times).</li> <li>o Financing does not require ticket prices to be impacted by capital program</li> </ul>	o New building could generate more revenues for all tenants <ul style="list-style-type: none"> <li>o Financing plan does not require ticket prices to be impacted by capital program</li> </ul>
21) Completion of arena construction	o September, 1987	o Summer, 1989
22) Historic Continuity	o Excellent	o Good, retains location; new building design can make appropriate historic references.

VII) CONCLUSIONS AND  
RECOMMENDATION

In summary, the key conclusions of the Study Team are as follows:

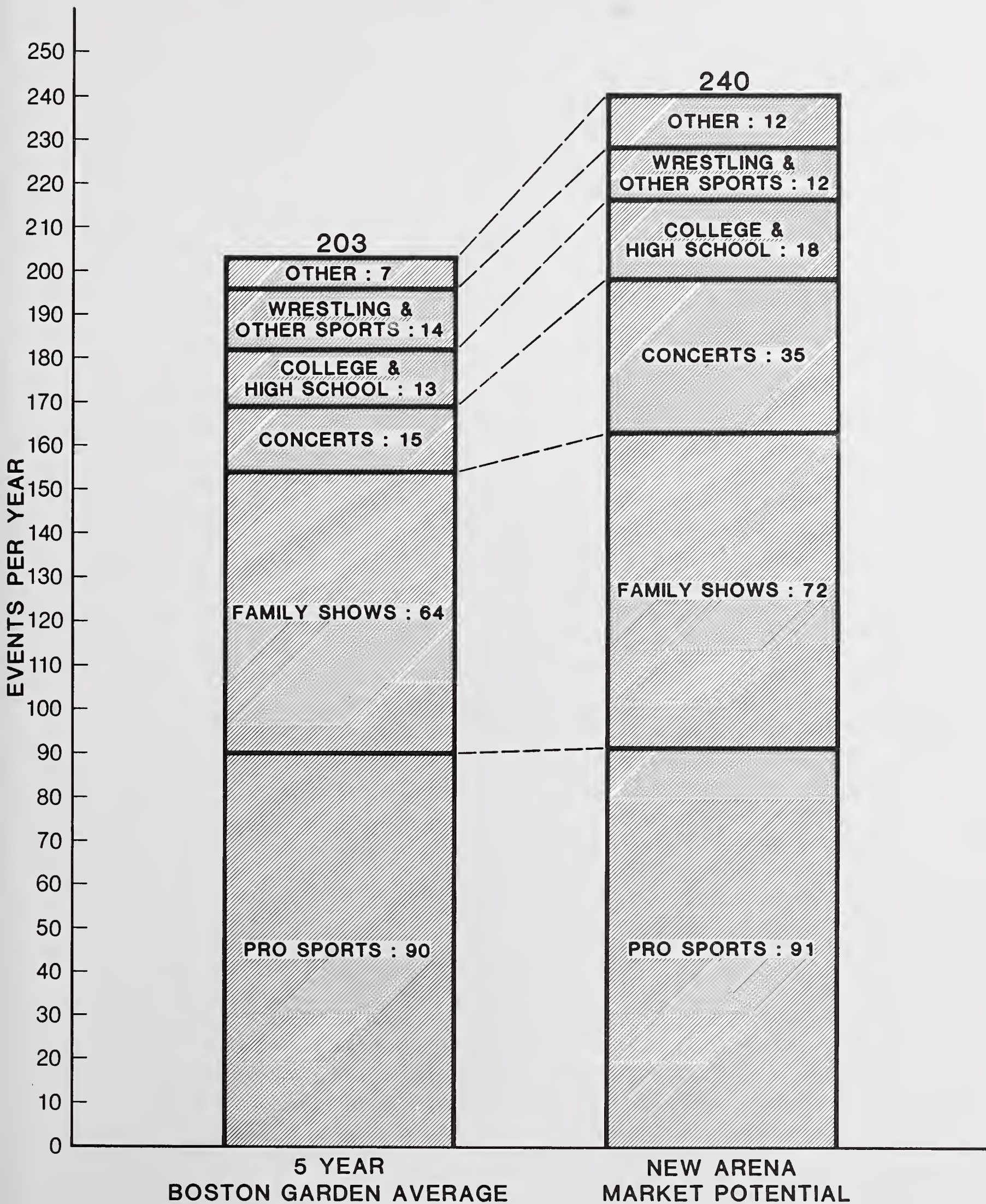
- 1) The current Boston Garden does not represent an acceptable solution to Boston's long term needs for a multi-purpose arena.
- 2) The owner's proposed renovation plan is incompatible with proposed public transit improvements for North Station and it does not result in a facility that meets industry standards. Furthermore, it may be difficult for the present owners to financially justify this renovation.
- 3) A full renovation of the Boston Garden can only go forward under Commonwealth sponsorship, due to the magnitude of the required investment. The resultant facility also would not completely meet industry standards for a multi-purpose arena.
- 4) A new facility built at North Station, while representing a substantial public investment, offers significant benefits to the citizens of the City and the Commonwealth:
  - o an industry standards facility, in keeping with Boston's national stature, that meets both the public interest and overall market demand for entertainment.
  - o an opportunity to create a coherent renewal of the North Station complex, including full provision for transit and private sector redevelopment.
  - o will generate significant economic benefits (jobs, direct spending, new tax revenues, etc.) to both the City and State by creating a new high-use development parcel in the City.
  - o as proposed, the financing plan should represent no net cost to the taxpayers; the increased Hotel/Motel Room Occupancy tax (primarily, a non-resident tax) and the increased City and State tax revenues arising from high-use development of the North Station site, can more than offset the potential public payments for arena costs.

In light of the above factors, the Study Team concludes that a new arena at North Station is the preferred alternative, and further, that the project is feasible subject to the effective implementation of the key planning assumptions. Such key planning assumptions include the acquisition of the required land and structures, appropriate design of the extended commuter rail facilities, subsurface relocation of the Green Line, use of the construction management approach, increasing the Hotel/Motel Room Occupancy Tax as required, use of the general obligation financing approach, and the appropriate intensive development of the front development parcel currently occupied by the Garden. Implementation of the key planning assumptions is discussed in detail in Section 16 of The Final Report.

Therefore, the Study Team recommends that the MCCA proceed with the planning and implementation activities necessary to finance and construct a new arena at North Station. As such, the MCCA should seek to achieve the key aspects of the recommended arena program including the project timing, the construction/development plan, and the plan of financing.



# BOSTON MARKET DEMAND VS. THE BOSTON GARDEN (Annual Events)





# HYPOTHETICAL FINANCING PLAN FOR A FULL PUBLIC RENOVATION OF THE BOSTON GARDEN (Dollars in Thousands)

Acquisition of Boston Garden Building and Land (1984 dollars)	\$15,000
Acquisition of Required City Land (1984 dollars)	2,000
Renovation Cost (1984 dollars)	25,000
Design and Engineering Fees (1984 dollars)	3,300
Contingency (See assumption #3, 1984 dollars)	<u>4,040</u>
Subtotal	49,340
Inflation Adjustment	<u>5,195</u>
Total Inflated Project Cost	54,535
Plus: Financing Costs	1,566
Less: Earnings During Construction	( <u>3,903</u> )
Total Net Borrowing Requirements	<u><u>\$52,198</u></u>
Estimated Annual Debt Service	\$ 5,837

## Major Assumptions:

1. Estimated borrowing amount and debt service assumptions based on Massachusetts General Obligation debt financing with a 28-year principal paydown.
  - Interest rate on bonds 10.5% (assumed as of October 15, 1984)
  - Construction fund interest earnings 9.5% (assumed as of October 15, 1984)
2. Construction assumed to begin July 1, 1985 and continue for 27 months.
3. The contingency assumption is estimated at ten percent (10%) of the renovation cost, plus five percent (5%) on all costs (including the 10% contingency amount) except acquisition costs.
4. Annual construction inflation is assumed to be five and one-half percent (5-1/2%) based upon Study Team estimates.
5. The Garden will remain in full operation during the renovation period.

**HYPOTHETICAL FINANCING PLAN FOR  
A NEW ARENA AT NORTH STATION  
(Dollars in Thousands)**

Land and Structures Acquisition	\$ 23,000
Arena Construction Costs, including arena portions of Galleria and premiums for air-rights above commuter rail tracks	78,915
Boston Garden Demolition	2,200
Construction Management Fee	3,530
Design and EIS Fees	4,120
Construction Contingency	4,438
Inflation Adjustment for a 63-Month Construction Cycle	<u>25,423</u>
Subtotal-Development Funds Required	141,626
Plus: Financing and Bond Issuance Costs	3,436
Less: Interest Earnings During Construction	( <u>30,632</u> )
Equals: Total Net Bonding Requirement	<u><u>\$114,430</u></u>
Estimated Annual Debt Service on Bonding Requirement	\$ 13,220

Source: Based on a General Obligation Bond Financing Approach; see  
Chapter 13 of the Full Report for a Complete Description



# NEW ARENA AT NORTH STATION SUMMARY REVENUE AND EXPENSE PROFILE

	(\$ in thousands)	
	1984	1992
Number of Events	240	240
Attendance (000's)	2,811	2,811
<u>EVENT REVENUES</u>		
Rent/Admission	\$11,437	\$17,552
Concession	3,225	4,950
Reimbursement of Expense	1,361	2,088
Other	96	147
Total Revenue	16,119	24,737
<u>EVENT EXPENSES</u>		
Payroll Related	2,953	4,532
Outside Security	483	741
Maintenance	457	701
Licensee Participation		
- Concession	195	299
- Other	4,506	6,915
Other Expense	1,183	1,815
Total Expense	9,777	15,003
NET EVENT REVENUE	6,342	9,734
NON-EVENT EXPENSE	( 6,103)	( 9,366)
OTHER INCOME	2,632	4,040
CASH FLOW FROM OPERATIONS	\$ 2,871	\$ 4,408
<u>OTHER CASH SOURCES/(REQUIREMENTS)</u>		
Replacement Reserve Provision	( 2,762)	( 3,362)
(Independent of Financing Plan)		
Lease Proceeds from Development Parcel	1,200	1,842
CASH AVAILABLE FOR DEBT SERVICE	<u>\$ 1,309</u>	<u>\$ 2,888</u>

Source: Study Team estimates for events, attendance, revenues, and operating expenses at a new arena in Boston.

ESTIMATED ANNUAL CASH SHORTFALL FOR  
A NEW ARENA TO COVER DEBT SERVICE  
(Dollars in Thousands)

Estimated Construction Financing Requirements:

. General Obligation Bonding	\$114,430
. Annual Debt Service on General Obligation Bonding	\$ 13,220

Arena Cash Flow to Support Debt Service, 1992 (1)	\$ 2,888
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Annual Excess or (Deficiency) of Arena Cash Flow To Cover Debt Service, 1992	(\$ 10,332)
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Note: (1) Estimated to be the first full year of debt service and the second fiscal year of arena operations.

# SUMMARY OF VIABLE NON-STATE OR PRIVATE ARENA FINANCING SOURCES (Dollars in Thousands)

Viable Non-State or Private Arena Financing Source	Estimated Reduction in Arena Financing to be Supported by State Taxpayers	
	Reduction in Construction Cost	Reduction or (Increase) in Taxpayer Supported Annual Debt Service
1) Sharing of Land Acquisition Costs With MBTA, 10/1/85	\$ 3,580	\$ 426
2) Private Contributions to Building Equipment Costs, 10/1/88	3,560	( 36) (1)
3) Sale of the Development Parcel, 7/1/90	15,375	( 1,842) (2)
4) Ticket Surcharge, 1992 Annual Amount	-	4,300
5) Aggressive Event Co-promotion, 1992 Annual Amount	-	770
TOTAL VIABLE NON-STATE SOURCES	\$ 22,515	\$ 3,618

\* \* \* \* \*

	<u>Total Construction Cost</u>	<u>Annual Debt Service</u>
Arena Gross Funding Requirement	\$141,626	\$13,220
Total Viable Non-State Funding Sources	22,515	3,618
Percent of Arena Gross Funding Requirements Available from Non-State Sources	16%	27%

Notes: (1) Amount shown includes potential lost advertising revenues as a result of equipment donations.

(2) Occurs too late in construction cycle to reduce borrowings needed for construction payments and therefore would not reduce debt service; amount shown is due to elimination of annual land lease revenue to arena.



ESTIMATED NEW ARENA FINANCING COSTS TO BE  
BORNE BY THE GENERAL TAXPAYERS  
(Dollars in Thousands)

Annual Arena Debt Service Costs Before Viable Outside Financing Options			(\$13,220)
Offset By:			
. Annual Arena Operating Cash Flow, 1992	\$2,888		
. Annual New Tax Revenues Generated, 1992			
- City Tax Revenues	3,700		
- State Tax Revenues	<u>2,900</u>	<u>9,488</u>	
Equals: Annual Arena Debt Service Burden on the Taxpayers Before Non-State Funding Options			( 3,732)
Maximum Annual Debt Service Reduction Available from Non-State Funding Options (1)		<u>5,460</u>	
Potential Annual Gain to State Taxpayers, Including Outside Funding Options, 1992		<u>\$ 1,728</u>	

Note: (1) Outside funding sources include: MBTA sharing of land costs, private building equipment contributions, ticket surcharge and event co-promotion.

**ESTIMATED MASSACHUSETTS HOTEL/MOTEL ROOM OCCUPANCY TAX  
REVENUES COMPARED TO ARENA DEBT SERVICE REQUIREMENTS  
(Dollars in Thousands)**

	<u>At Current Tax Rate of 5.7%</u>	<u>At Hypothetical Tax Rate of 8.0%</u>	<u>Increase in Revenues from 5.7% to 8.0% Tax Rate</u>
Estimated Annual Statewide Hotel/ Motel Tax Revenues:			
. 1984	\$28,000	\$ N/A	\$ N/A
. 1992 (1)	54,400	76,400	22,000
Annual Arena Debt Service - 1992	N/A	N/A	13,220
Balance of 1992 Estimated Statewide Hotel/Motel Tax Revenues After Arena Debt Service	N/A	N/A	\$ 8,780

Note: (1) 1992 is assumed to be the second full fiscal year after completion of the total construction project and the first year of principal repayment on bonds.

N/A - Not Applicable



**MULTI-PURPOSE ARENA  
FEASIBILITY STUDY**

MASSACHUSETTS  
CONVENTION CENTER AUTHORITY

Howard Needles Tammen & Bergendoff

In Association With

Frederick R. & Co.

Stull and Lee

Conceda Management Corp.

Went, Lamb and Company Inc.

NOVEMBER 1984

**SITE PLAN**





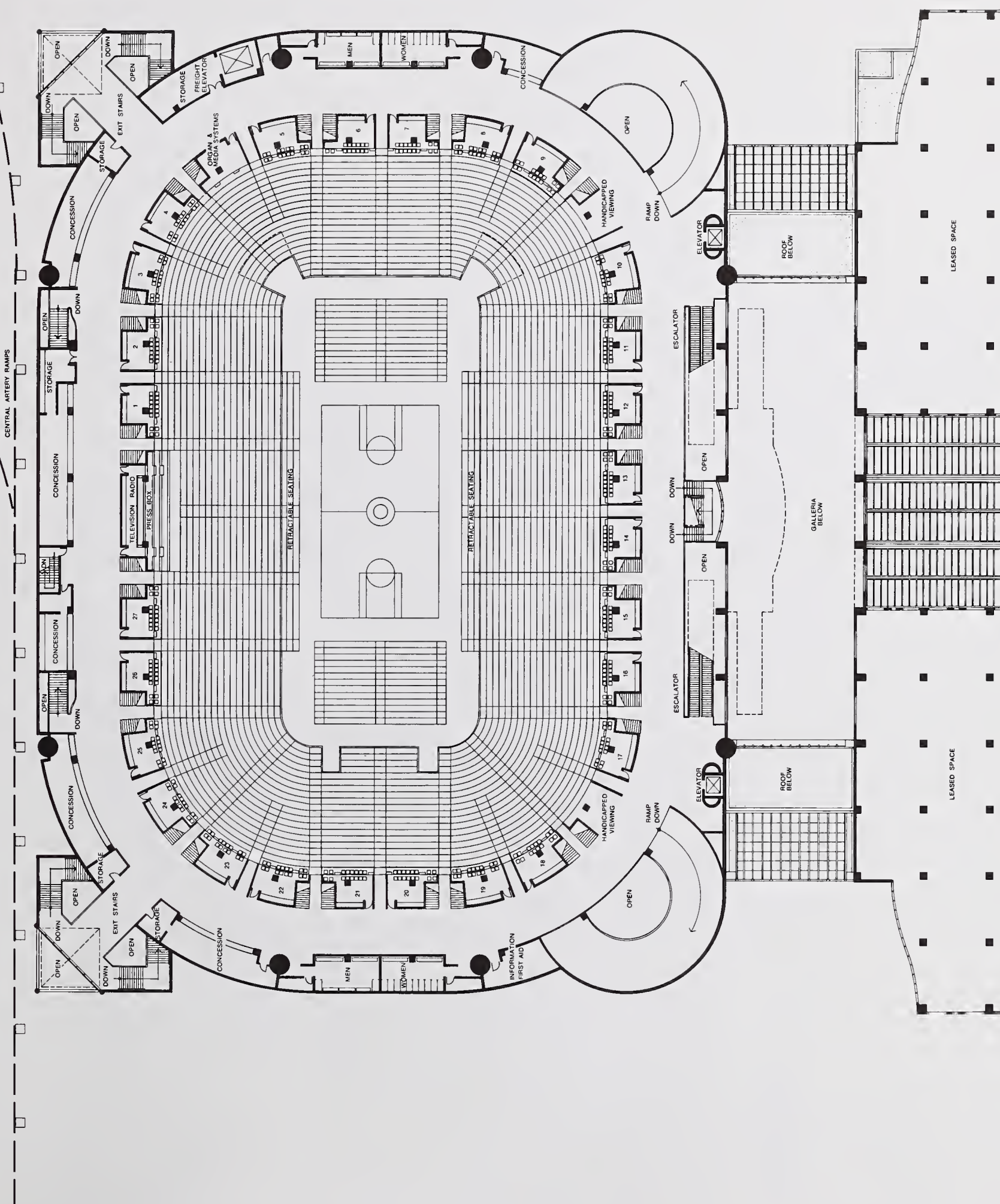


MULTI-PURPOSE ARENA  
FEASIBILITY STUDY

MASSACHUSETTS  
CONVENTION CENTER AUTHORITY  
Howard Needles Tammen & Bergendoff

In Association With  
Touche Ross & Co.  
Sullivan & Smith  
Concordia Management Corp.  
Hahn, Eskin and Company Inc.  
NOVEMBER 1984

CONCOURSE LEVEL  
PLAN





# MULTI-PURPOSE ARENA FEASIBILITY STUDY

MASSACHUSETTS  
CONVENTION CENTER AUTHORITY  
Howard Needles Tammen & Bergendoff

In Association With:  
Touche Ross & Co.  
Carter Group  
Concordia Management Corp  
Rayn, Elson and Company Inc

NOVEMBER 1984

## SECTION THROUGH ARENA, GALLERIA AND ATRIUM

